

Remarks

Reconsideration and continued examination of the present application is respectfully requested in view of the amendments referred to above and the remarks that follow.

Claims 30-40 remain pending in the application. Claims 30 and 35 are amended. Claims 31, 31(32)-31(35), and 36-40 remain withdrawn from consideration.

For ease of reference, the paragraphs that now follow are numbered to correspond to the paragraph numbering used by the Examiner in the outstanding Office Action.

4. Claim 30 and its dependent claims were rejected as indefinite on the bases that the language “a polymer ... thereof” is an improper Markush type grouping, and that “copolymer thereof” is vague, indefinite and nonsensical. In response, claim 30 has been amended to --a polymer selected from the group *consisting of* ...--, in accordance with the more traditional formulation for a Markush group, see e.g. M.P.E.P. § 2173.05(h). The claim has also been amended to recite --a copolymer of *ethylene naphthalate*--, for improved technical accuracy. This is of course what one of ordinary skill would understand by the more colloquial “a copolymer thereof” or “copolymers ... of the above polymers” as used respectively in originally submitted claim 30 and in the specification at the bottom of page 12, for example. No new matter has been added. Further, the scope of claim 30 has not been narrowed by introduction of these stylistic amendments. Withdrawal of the rejection is respectfully rejected.

6. Claims 30, 30(32), 30(33), and 30(35) were rejected as obvious over U.S. Patent 3,610,729 (Rogers) in view of U.S. Patents 4,756,953 (Utsumi) or 4,799,772 (Utsumi). The Office Action stated that it would have been obvious to replace the polyethylene terephthalate (PET) layers of Rogers with polyethylene naphthalate (PEN) layers as taught by Utsumi '953 or Utsumi '772 in order to improve the heat resistance, heat shrinkage ratio, mechanical properties and degree of polarization of the multilayer interference film. The Office Action further stated with respect to claim 30(35) that it would have been obvious to modify the substrate of multilayer interference film of Rogers in view of Utsumi '953 or Utsumi '772 to include at least one polymeric skin layer of a polycarbonate and/or polymethyl methacrylate material, as is commonly used and/or employed in the optical art in order to protect or improve the mechanical strength of the multilayer interference film.

Applicants respectfully traverse this rejection. Rogers is directed to a multilayered light polarizer (see the title). The polarizer has alternate layers of birefringent material and isotropic material (see e.g. col. 2 lines 21-23 and col. 5 lines 12-16), or of two different birefringent materials, one positive and the other negative (see e.g. col. 4 lines 27-32). The layers should have an optical thickness of substantially one-quarter the wavelength of a selected wavelength of light (see e.g. col. 1 lines 50-53). At the bottom of column 4, certain polymers including PET are identified as readily lending themselves to the inexpensive and suitable coextrusion process, and can be rendered birefringent by a subsequent stretch orientation step. Rogers notes that it is sufficient to stretch the multilayer sheet until the refractive index discontinuity is less for one polarization component than the orthogonal component (col. 5 lines 8-11). In an exemplary coextrusion embodiment (see the lower portion of column 5), Rogers coextruded polystyrene and PMMA into a multilaminar sheet containing 250 alternating layers, each layer being one-quarter optical wavelength in thickness, and stretched the multilayer coextrusion approximately 3% at 30°C, just short of the fracture point, to demonstrate the oriented structure's ability to polarize light.

Utsumi '772, in contrast, is directed to films used for liquid crystal panel substrates, in particular for cells of liquid crystal panels (see e.g. col. 1 lines 1-11). These substrates can apparently be subjected to high temperatures, for example, when a transparent electrode is formed by vacuum evaporation (col. 1 lines 35-37) or for heat treatment to reduce the heat-shrinkage ratio (col. 3 lines 14-34). Utsumi notes certain problems in this regard when the substrate is a uniaxially stretched PET film, such as blooming of an oligomer leading to increased haze and problems with the lead wire of the device (col. 1 lines 26-44). Utsumi discusses advantages of using uniaxially high-oriented PEN in such liquid crystal panel substrates, including much higher heat resistance than PET, thus producing no blooming of oligomer, and efficient weather resistance, tear strength, and degree of polarization. The PEN films of Utsumi appear to be monolithic, single layer films. The thickness thereof is not specified, but "usually is 10 to 250 μm " (col. 3 lines 43-45). The amount of stretching of the PEN films taught by Utsumi is 3 to 7 times (longitudinal, col. 4 line 5), 2.0 times (transverse, col. 4 line 6), 3.5 times (transverse, col. 4 line 14), 1.2 times (longitudinal, col. 7 line 18) and 4.2 times (transverse, col. 7 line 19).

Utsumi '953 is similar to Utsumi '772, except the PEN film is disclosed for polarizing plates which contain a dichroic dyestuff. The disclosed films are again apparently monolithic,

single layer films. Similar or identical thicknesses and amounts of stretching are disclosed as in Utsumi '772.

The Utsumi references show nothing more than that PEN is suitable for two particular applications--liquid crystal panel substrates, and polarizing plates which contain a dichroic dyestuff--where PET was used previously. These applications apparently used monolithic, single layer films, with thicknesses of usually 10 to 250 μm , and stretched the films from 1.2 times to 7 times. This is very different from the birefringent films of Rogers, where the polymers are coextruded before stretching and each layer is made to have an optical thickness of only one-quarter the length of a selected wavelength of light. The exemplary coextrusion embodiment of Rogers used stretching of only about 3%, which is tiny compared to the stretch ratios ranging from 1.2 to 7 for the Utsumi references. Nor does Rogers mention heat treatment of his birefringent films, which was problematic for PET in the Utsumi applications.

In view of the very different applications and corresponding different features and requirements of the Utsumi references relative to the Rogers reference, it is respectfully submitted that only with the benefit of hindsight would it have been obvious to use PEN in the multilayer films of Rogers. The coextrusion process raises additional considerations with regard to the coextruded materials that are not of concern when making a monolithic film. Rogers himself acknowledges that *certain materials* (one of which is PET) *readily lend themselves to the coextrusion process*. (Col. 4 lines 71-75, emphasis added.) The Utsumi references provide no guidance about whether PEN would also readily lend itself to such process. At best, it might be argued that it would be *obvious to try* PEN in the constructions of Rogers in view of the Utsumi references, but such a standard of course falls short of that required to establish a *prima facie* case of obviousness under 35 U.S.C. § 103. Hence, the rejection under that statute of pending claim 30, and of its dependent claims 32-35, should be withdrawn.

8-10. Claims 30, 30(32), 30(33), and 30(35) were rejected under the judicially created doctrine of obviousness-type double patenting in view of various claims of U.S. Patents 5,103,337 (Schrenk et al.), 6,045,894 (Jonza et al.), and 6,368,699 (Gilbert et al.). The Examiner's attention is drawn to the fact that, many years ago, U.S. Patent 5,103,337 (Schrenk et al.) was surrendered in favor of Reissue U.S. Patent RE 34,605 (Schrenk et al.). Therefore, in response to the rejection, terminal disclaimers are submitted herewith over (1) U.S. Patent RE 34,605 (Schrenk et al.); (2) U.S. Patent 6,045,894 (Jonza et al.); and (3) U.S. Patent 6,368,699 (Gilbert et al.).

11. The drawings were objected to under Rule 83(a). In response thereto, new drawings are submitted herewith. Support for these drawings can be found in the specification as described above. No new matter has been added.

Conclusion

In view of the foregoing, it is submitted that the application is in condition for allowance, the early indication of which is earnestly solicited.

Beyond the fee associated with the extension of time, no additional fee is believed to be due by submission of this paper. If this belief is in error, please charge any required fee to Deposit Account No. 13-3723.

Respectfully submitted,

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Date

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